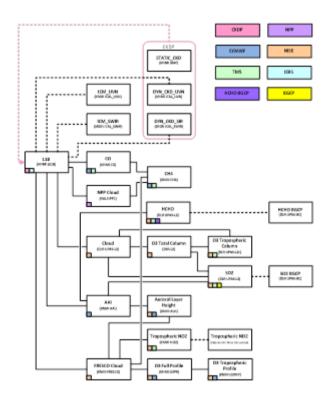
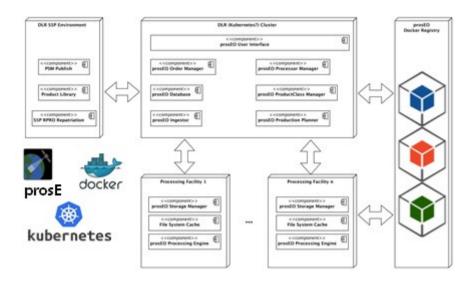
Reprocessing Sentinel 5 Precursor Data with ProsEO

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The European Copernicus program provides a variety of satellite data products fit for applications in monitoring of environment and security. The Sentinel 5 precursor, carrying the hyperspectral instrument TROPOMI, continuously monitors the earth's atmospheric composition. Data is produced continuously but progress in understanding of the data as well as the earth's atmosphere leads to a continuous development in the algorithms retrieving the trace gas concentration from the sensor values. Due to this progress a reprocessing of the whole missions data is required from time to time. The amount of input here is in a petabyte scale, the number of files to be processed is in the scale of a million files and the time available is weeks.



The reprocessing system used has to follow a complex dependency graph of trace gas dependencies and cope with a multitude of configuration dependencies between different processor versions and configurations. The combination of processor version and configuration defines the requirement of an input product with a specific processor version and configuration produced. The processing of a product is triggered by a simple request of a specific product produced by a version/configuration of a processor. The dependency graph is generated by prosEO and the triggering of functions on hardware is done by kubernetes. The processors are encapsulated in docker images.



prosEO is capable of handling multiple cloud providers (processing facilities) depending on cost and data availability decisions.